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SIPDIS

SENSITIVE

STATE FOR WHA/BSO
NSC FOR RENIGAR, BREIER, SHANNON
TREASURY FOR OASIA - DAS LEE AND FPARODI
DOE FOR SLADISLAW
USDOC FOR 4332/ITA/MAC/WH/OLAC/JANDERSEN/ADRISCOLL/MWAR D
USDOC FOR 3134/ITA/USCS/OIO/WH/RD/DDEVITO/DANDERSON/EOL SON

E.O. 12958: N/A

TAGS: [ENRG](#) [EINV](#)

SUBJECT: BRAZIL'S SUPPLY OF ELECTRICITY SUFFICIENT FOR NOW, BUT
CONCERN FOR THE FUTURE

REFS: (A) Brasilia 0775, (B) Sao Paulo 0721, (C) Brasilia 1239

[1](#)1. (U) Summary: Brazil's electricity generation and transmission network continues to be strong and has been able to weather recent troubles stemming from both politics and nature. Despite a continuing drought in southern Brazil, the turmoil in Bolivia that threatens natural gas supplies to Brazil, and a storm that knocked out two of the Itaipu hydroelectric plant's (a major supplier) transmission lines, no concern has been expressed about a potential black-out because of Brazil's abundant electricity generation capacity and flexible national transmission grid. While the sector has been able to overcome these immediate challenges, significant new investment is necessary in the next few years for Brazil to avoid a power shortage. End Summary.

Lurking Dangers

[1](#)2. (U) After facing a serious electricity shortage and rationing in 2001 and 2002, due to an extensive drought and lack of transmission capacity to move energy from surplus to deficit areas, the GOB has made a concerted effort to improve the national electricity generation and distribution network. In terms of electricity generation capacity, the GOB encouraged Petrobras to enter into several thermoelectric generation plant contracts as a guarantor, thereby establishing a thermal power insurance policy that would secure supply and help avoid another shortage. The thermoelectric plants had the added advantage that they could be constructed and enter into operation relatively quickly. Brazil's electric power system has been able to ride out three major incidents recently, showcasing its current strength. First, southern Brazil is in the midst of its worst drought in 40 years and there is widespread concern regarding the impact on agricultural output (Ref A), local populations, and hydroelectric generation. Second, the political upheavals in Bolivia have called into question the reliability of the natural gas supply to Brazil. Third, a recent storm at the Itaipu generation plant knocked out two of its transmission lines. Nevertheless, Brazil is not currently in danger of a repeat of the 2001-2002 crisis.

Drought Pressure on Reservoir Levels

[1](#)3. (U) The drought has depleted southern Brazil's reservoir levels, which were just over 50% in May (but had risen to 70% by mid-June). In response, the National Electric System Operator (ONS) decided to increase production of electric energy at the Itaipu plant by 10% to reduce demand on the hydroelectric supply and thus conserve the southern region's reservoir levels. But the low reservoir levels in the south are also offset but the high levels in the other three regions, which are currently 94% in the Northeast, 84% in the Southeast, and 97% in the North (although the North remains the least interconnected of all the regions).

[1](#)4. (SBU) Rafael Machado, an engineer in the Brazilian National Electric Energy Regulatory Agency (ANEEL), told EconOff that the Brazilian system of hydroelectric generation relies on a system of balances, in which, because of climatic variations, it is assumed that there will be periods of time in which the rainfall is lower in some regions and higher in others. He said that right now, as a whole, there is plenty of water in reserve to generate the necessary power, while there wasn't in 2001. In addition, Machado explained, the infrastructure for transmission of energy from one part of the country has expanded sufficiently now to accommodate shortfalls in one region with the surplus in another, which also wasn't the case in 2001-2002. The relatively flat landscape in the south generally does not allow for large reservoirs, according to Machado, resulting in relatively smaller reserves even during times of good rain. Although there are serious water shortages for the human population and for agriculture and animal husbandry, Machado pointed out that the south does not have a problem with electricity supply. Machado

said that in southern Brazil the first line of defense against shortages is the thermoelectric plants (which initially went into full capacity operation), but any additional shortfalls would be met through energy transfers from other regions.

The Thermoelectrics and Natural Gas Supplies

15. (U) Because the thermoelectric plants generate a relatively low proportion of the electricity consumed in Brazil, the potential shortage of gas from Bolivia and the current shortage from Argentina has not negatively impacted electricity generation. Given the current electric energy glut in Brazil in general, however, the thermoelectric plants have shifted to playing more of a contingency role in the overall power generation mix, which is dominated by hydroelectric power. Thermal generation represents 18% of Brazil's overall generation capacity, but much of that capacity is typically under-utilized. This was fortunate, since Argentina has not sent Brazil all of the natural gas that it contracted for due to shortfalls in meeting Argentina's own demand. As a result, two thermoelectric plants in southern Brazil that run on Argentine natural gas were reportedly shut down temporarily. The excess in hydroelectric generation capacity also made it easier to plan for a potential cutoff in Bolivian natural gas supplies in view of the political crisis in that country. Although the first step in Brazil's contingency plan was to shut down its natural-gas powered thermoelectric plants, such an action would not have stressed power supplies. The possible rationing raised enormous concerns for the city of Sao Paulo because of the large quantities of bottled and natural gas consumed by both industries and households there (Ref B); however, the consensus is that if rationing does come to pass, it will not impact electricity supplies.

Storm at Itaipu

16. (U) A powerful storm on June 14 knocked out two of the transmission lines at the Itaipu hydroelectric generation plant, shutting down four of its twelve turbines and reducing its operation to 60% of capacity. The ONS responded to the emergency by restarting turbines at other hydroelectric plants that were undergoing maintenance, activating natural gas thermoelectric plants (through an agreement with Petrobras), asking the Angra I and Angra II nuclear plants to increase their output, and importing electricity from Argentina. The Director-General of the ONS was reported in the press as saying that the solution was indicative of how "robust the interconnectivity of the system" is. (Completed in 1983, Itaipu is the largest hydroelectric plant in the world and a joint venture between Brazil and Paraguay; it has the capacity for generating up to 12,600 MW -- twice the capacity of the Grand Coulee in the United States.)

Comment: Is All This Sustainable?

17. (SBU) Brazil's combination of a relatively flexible energy grid and its current hydroelectric power generation capacity surplus allowed the country to weather recent challenges. To meet Brazil's future energy demands, however, the electric energy sector will require significant investments soon as the current excess supply won't last forever. Time is short, as the GOB needs to get new hydroelectric power plants under construction now to meet supply shortfalls expected in 2009. This is especially urgent in light of new findings reported by the Brazilian Natural Gas and Petroleum Institute (IBP). The IBP asserts that, because of the delay in the construction of new hydroelectric plants, the thermoelectric plants will likely be operating at full capacity in 2008 just to meet projected demand. IBP says that would mean an increase in natural gas consumption to close to 100 million cubic meters per day, even though the forecast supply of natural gas for 2008 is only 70 million cubic meters per day. In other words, even if the large natural gas supply in Brazil's Santos Basin comes on-line early and the proposed natural gas ring connecting Chile-Argentina-Uruguay-Brazil materializes, Brazil will need a secure natural gas supply to meet its future electricity demands, especially if the water reservoir levels decrease.

18. (SBU) The Ministry of Mines and Energy (MME) is preparing its first auction for new power generation plants under the GOB's new energy model. The transition to the new model and a bungled electricity supply auction (Ref C), however, has hurt many existing private power companies in the sector and damaged the MME's credibility with investors. The situation is not yet dire as the MME could resort to filling the predicted supply gaps with additional thermoelectric and biomass plants, which can be built more quickly than hydroelectric plants, although Brazil would still be faced with questions about the adequacy of its gas supplies. Whatever the source of the energy, the upcoming bids for new generation capacity should help answer the fundamental question of whether the GOB will be able to attract significant new private investment in the energy sector.

19. (U) This cable was coordinated with Consulates General Sao Paulo and Rio de Janeiro.

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